

Application No. 10/666974
Amendment dated January 17, 2006

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AMENDMENTS TO THE CLAIMS

This listing of the claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

claims 1-47 (canceled)

48. (Currently Amended) A multi-cavity thin-film interference filter comprising a sequence of alternating layers of amorphous silicon and a dielectric material deposited one on top of the other to form a tunable bandpass filter, said dielectric material being selected from the group consisting of silicon dioxide and silicon nitride, said sequence of alternating layers forming coupled Fabry-Perot cavity structures including at least a first Fabry-Perot cavity structure and a second Fabry-Perot cavity structure, each of said first and second Fabry-Perot cavity structures comprising:

- a first multi-layer thin film interference structure forming a first mirror;
- a thin-film spacer layer deposited on a top surface of the first multi-layer thin-film interference structure, said thin-film spacer layer made of said amorphous silicon; and
- a second multi-layer thin film interference structure deposited on a top surface of the thin-film spacer layer and forming a second mirror; and

wherein said multi-cavity filter further comprises:

- a layer of electrically conductive material to which, during use, power is supplied by an external source to change the temperature of the multi-cavity thin film interference filter and thereby shift the passband of the multi-cavity thin film interference filter; and

a substrate on which the first multi-layer thin film interference structure of the first Fabry-Perot cavity structure is deposited, wherein said layer of electrically conductive material forms a ring heater on the substrate and circumscribing an optical path through the first and second Fabry-Perot cavity structures.

Claims 49-59 (Canceled)

60. (Previously Presented) The multi-cavity thin film interference filter of claim 48, wherein the dielectric material is silicon nitride.